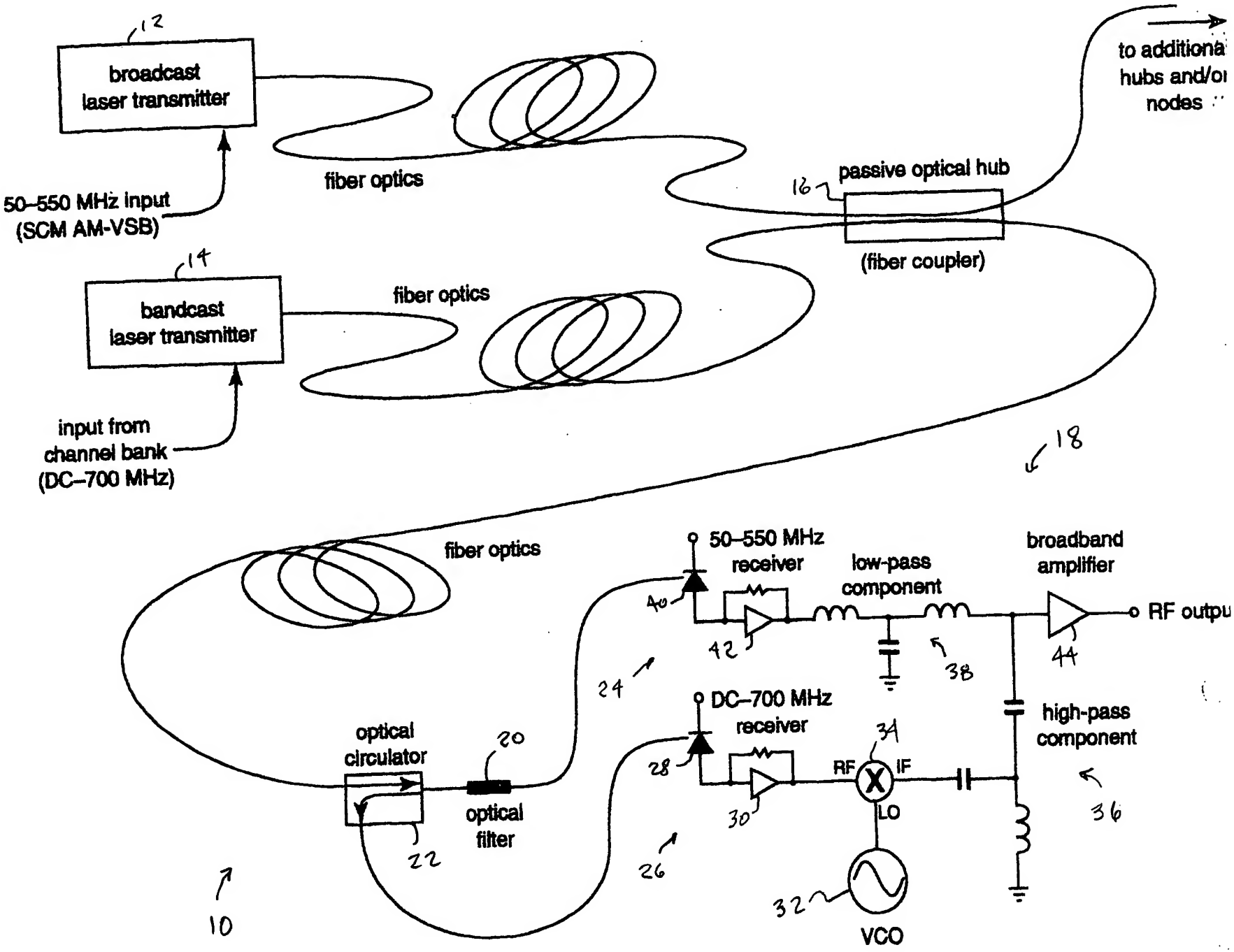
12
broadcast
laser transmitter
50–550 MHz input
(SCM AM-VSB)
fiber optics
to additiona
hubs and/o
nodes
16
passive optical hub
(fiber coupler)
14
bandcast
laser transmitter
fiber optics
input from
channel bank
(DC–700 MHz)
18
fiber optics
50–550 MHz
receiver
low-pass
component
broadband
amplifier
RF outpu
40
42
38
44
24
DC–700 MHz
receiver
high-pass
component
optical
circulator
20
optical
filter
22
28
34
RF
IF
LO
30
36
26
32
VCO
10

FIGURE 1

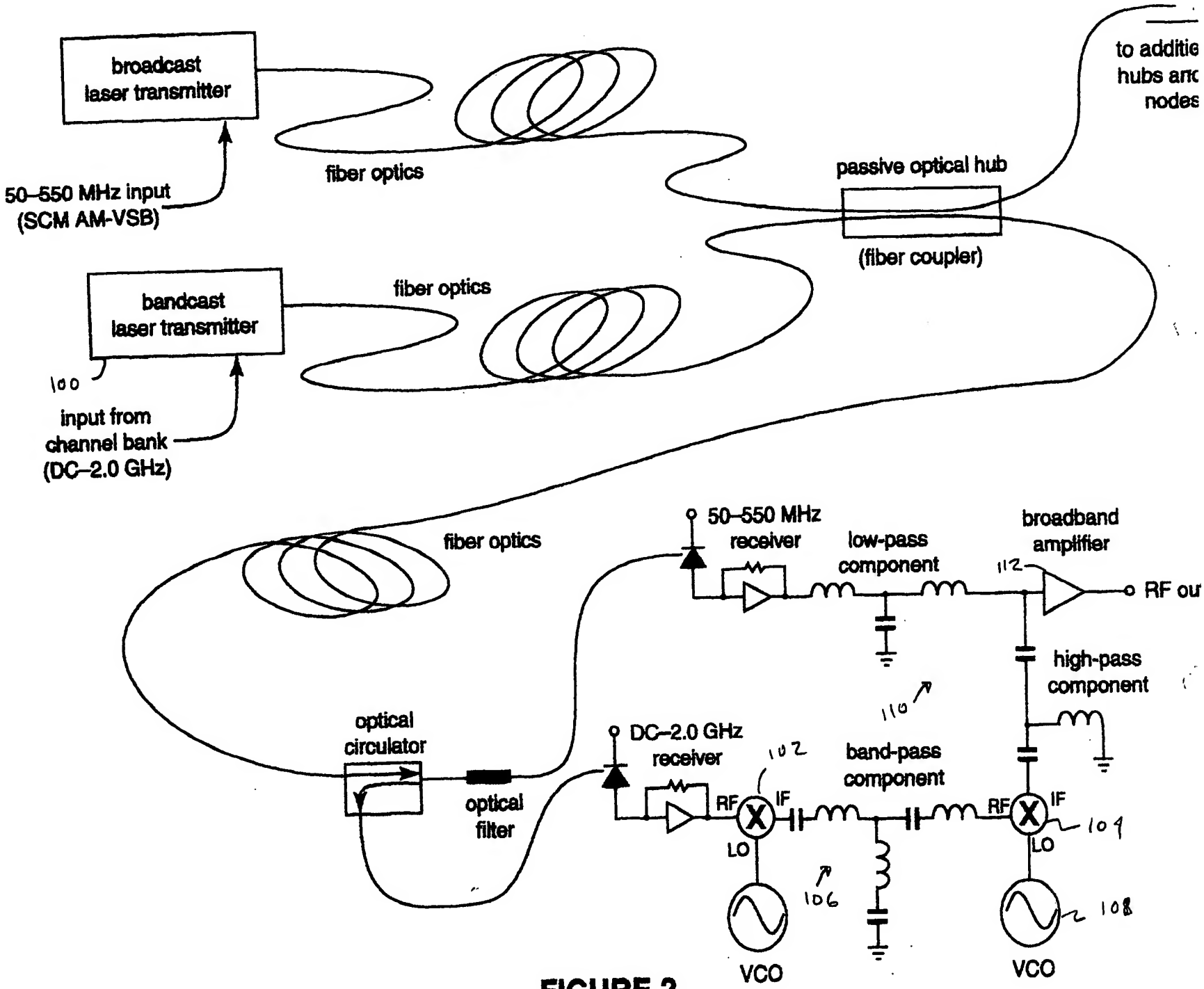
broadcast
laser transmitter
50–550 MHz input
(SCM AM-VSB)
fiber optics
passive optical hub
(fiber coupler)
to additie
hubs and
nodes
bandcast
laser transmitter
100
input from
channel bank
(DC–2.0 GHz)
fiber optics
fiber optics
50–550 MHz
receiver
low-pass
component
broadband
amplifier
112
RF ou
high-pass
component
110
optical
circulator
optical
filter
DC–2.0 GHz
receiver
102
band-pass
component
RF
IF
LO
106
104
108
VCO
VCO

FIGURE 2

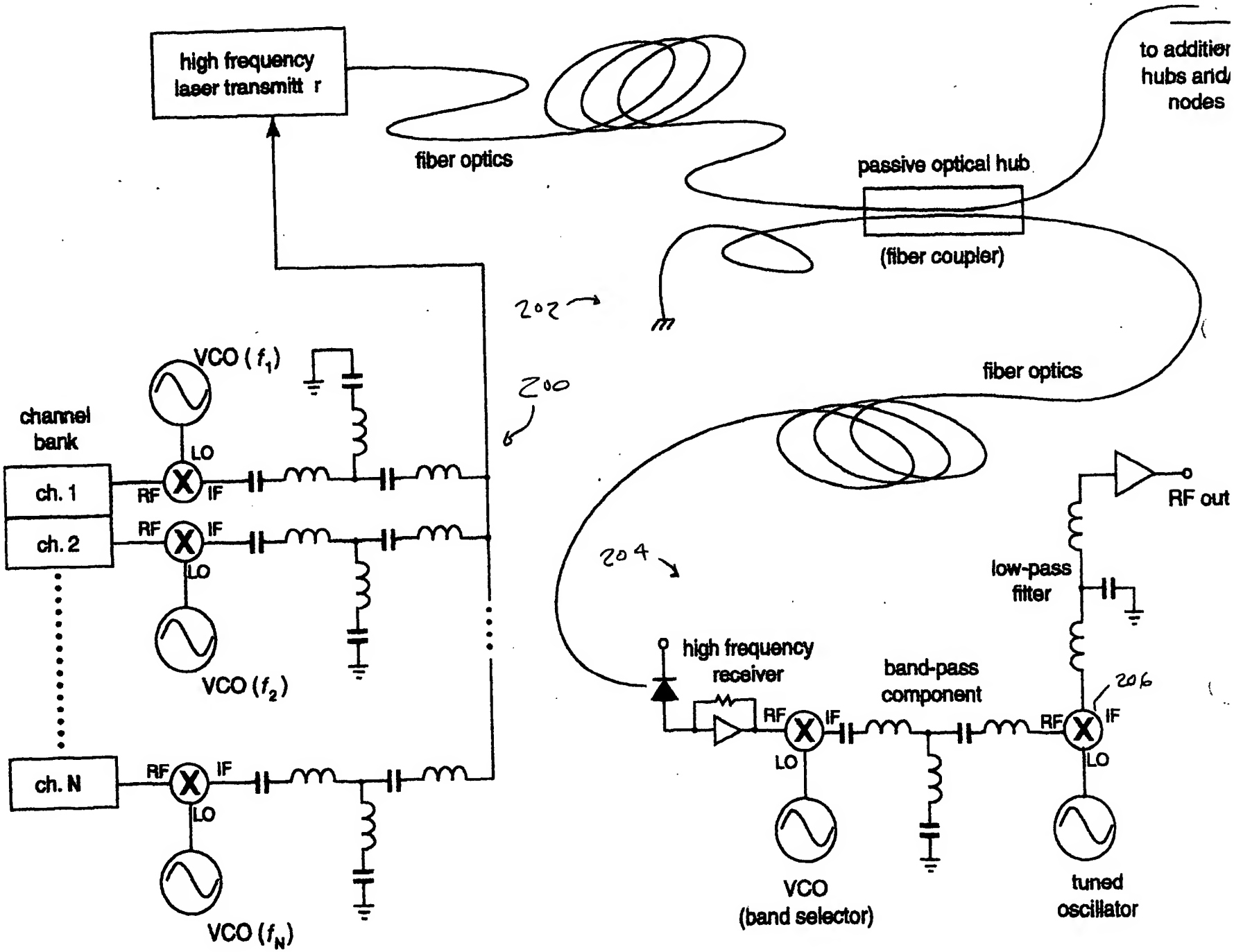
high frequency laser transmitt r
fiber optics
to additier hubs arid/ nodes
passive optical hub
(fiber coupler)
202
200
fiber optics
channel bank
ch. 1
ch. 2
ch. N
VCO (f_1)
VCO (f_2)
VCO (f_N)
LO
RF
IF
204
RF out
low-pass filter
high frequency receiver
band-pass component
206
VCO (band selector)
tuned oscillator

FIGURE 3

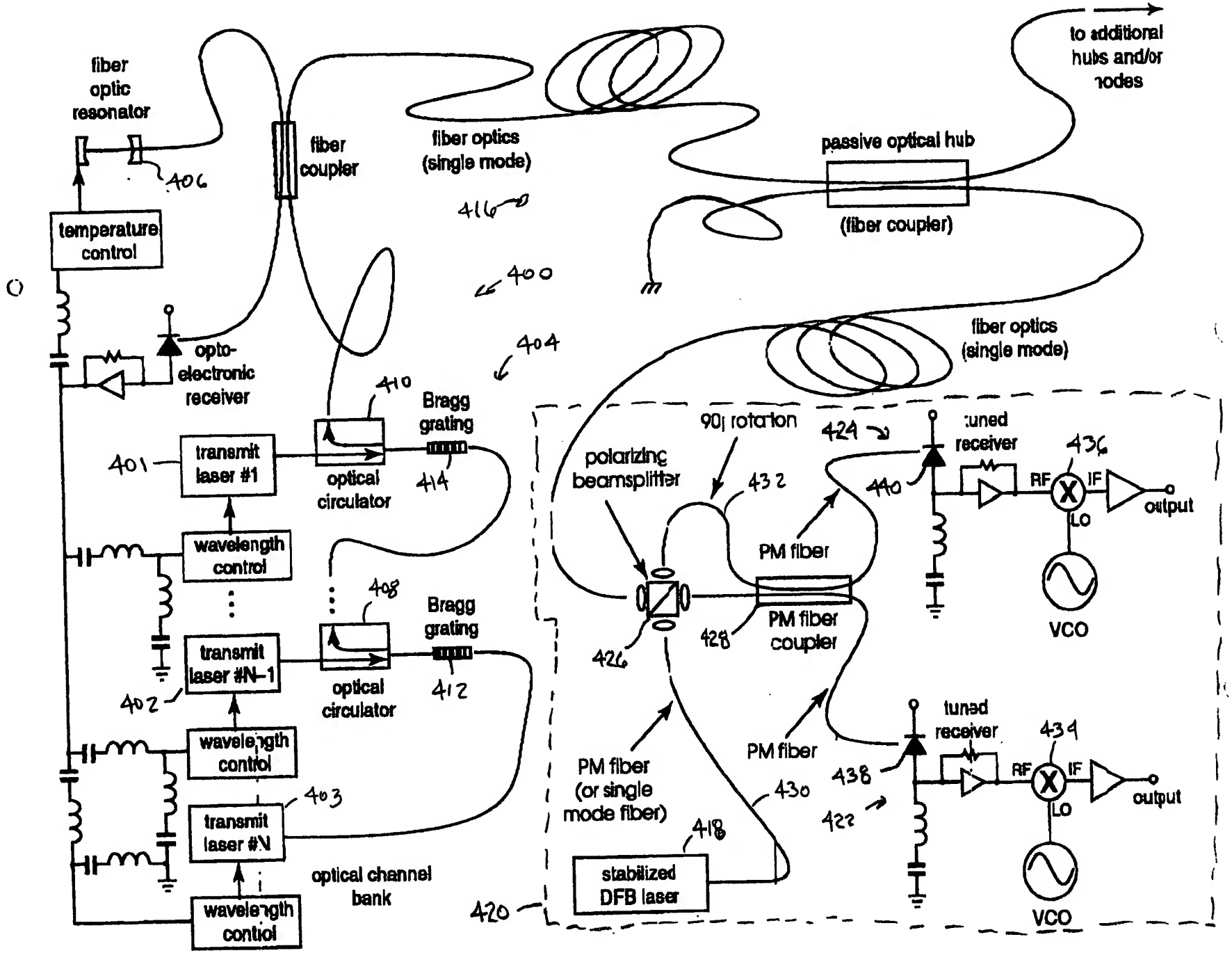
fiber optic resonator
406
fiber coupler
fiber optics (single mode)
416
passive optical hub
(fiber coupler)
to additional hubs and/or nodes
400
temperature control
opto-electronic receiver
404
fiber optics (single mode)
410
Bragg grating
401
transmit laser #1
optical circulator
414
wavelength control
408
Bragg grating
transmit laser #N–1
optical circulator
412
402
wavelength control
403
transmit laser #N
wavelength control
optical channel bank
90| rotation
424
tuned receiver
436
polarizing beamsplitter
432
RF
IF
LO
output
440
PM fiber
PM fiber coupler
428
426
VCO
PM fiber (or single mode fiber)
PM fiber
tuned receiver
434
438
430
422
RF
IF
LO
output
418
stabilized DFB laser
420
VCO

FIGURE 4

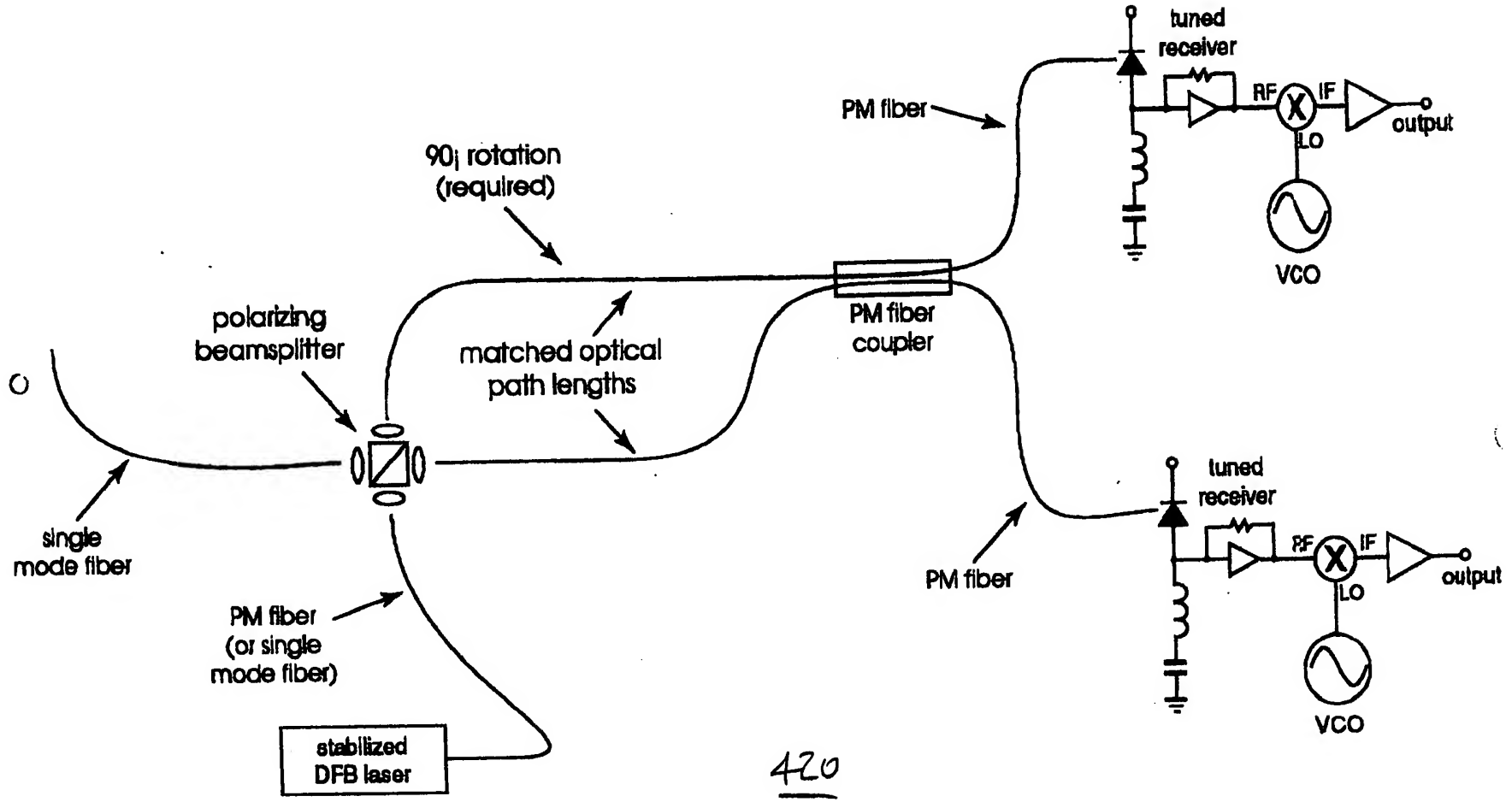
tuned
receiver
PM fiber
RF
IF
output
LO
VCO
90¡ rotation
(required)
polarizing
beamsplitter
matched optical
path lengths
PM fiber
coupler
single
mode fiber
PM fiber
(or single
mode fiber)
stabilized
DFB laser
PM fiber
tuned
receiver
RF
IF
output
LO
VCO
420

FIGURE 5

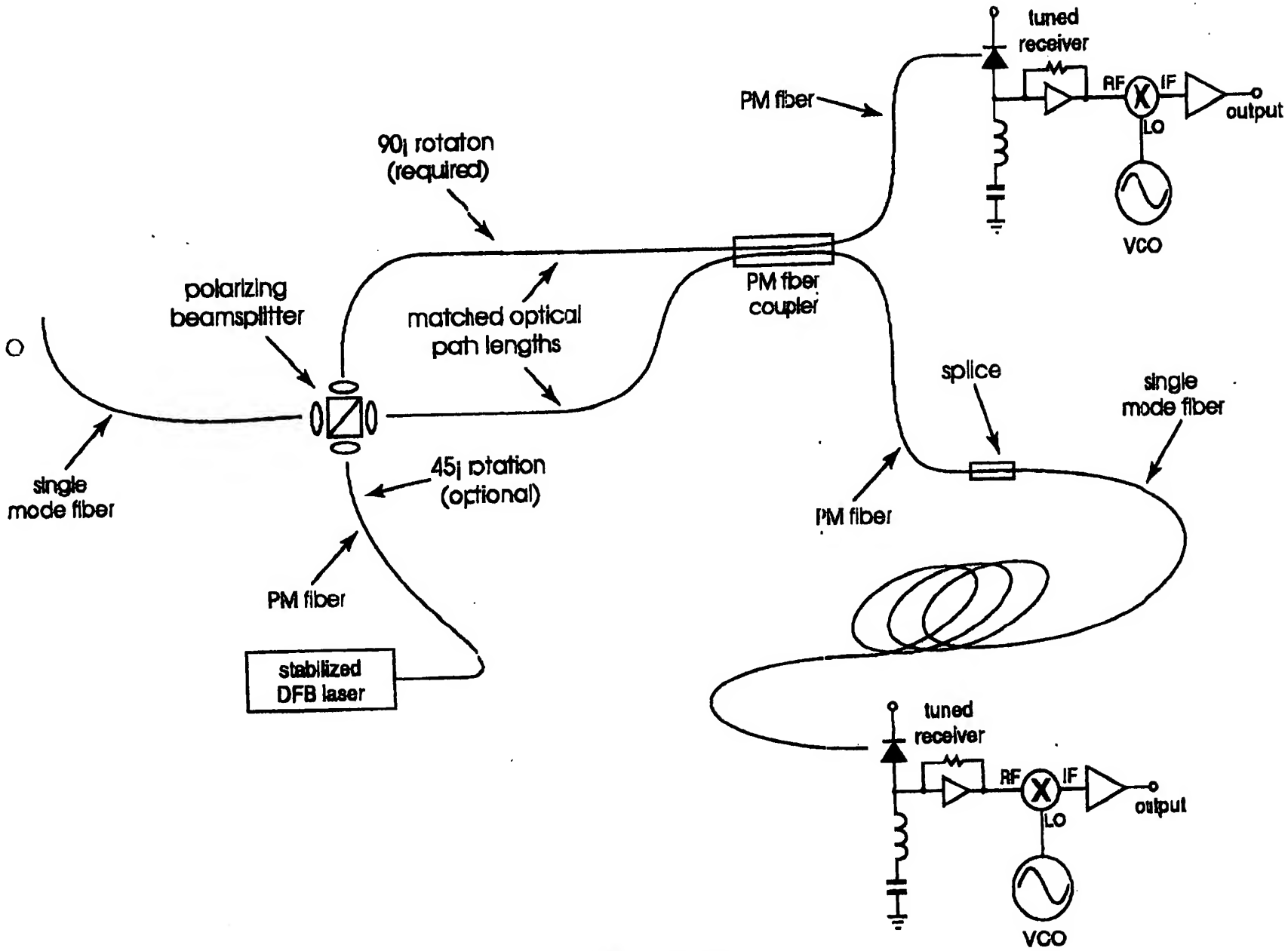
tuned
receiver
RF
IF
output
LO
VCO
PM fiber
90¡ rotaton
(required)
polarizing
beamsplitter
matched optical
path lengths
PM fiber
coupler
splice
single
mode fiber
single
mode fiber
45¡ rotation
(optional)
PM fiber
PM fiber
stabilized
DFB laser
tuned
receiver
RF
IF
output
LO
VCO

FIGURE 6

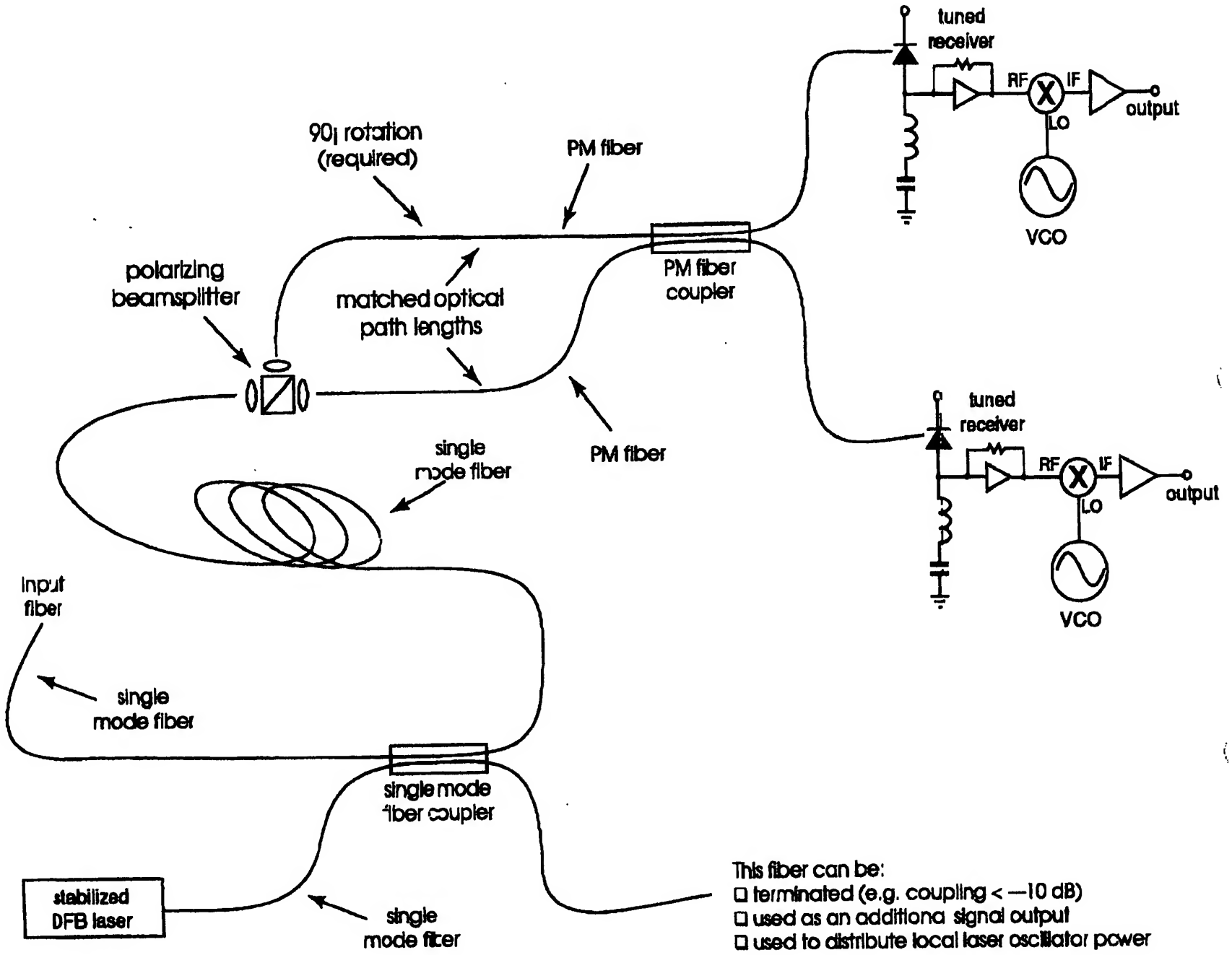
tuned receiver
RF
IF
output
LO
VCO
90| rotation (required)
PM fiber
polarizing beamsplitter
matched optical path lengths
PM fiber coupler
tuned receiver
RF
IF
output
LO
VCO
single mode fiber
PM fiber
input fiber
single mode fiber
single mode fiber coupler
stabilized DFB laser
single mode fiber
This fiber can be:
□ terminated (e.g. coupling < —10 dB)
□ used as an additional signal output
□ used to distribute local laser oscillator power

FIGURE 7

Last 2 claims

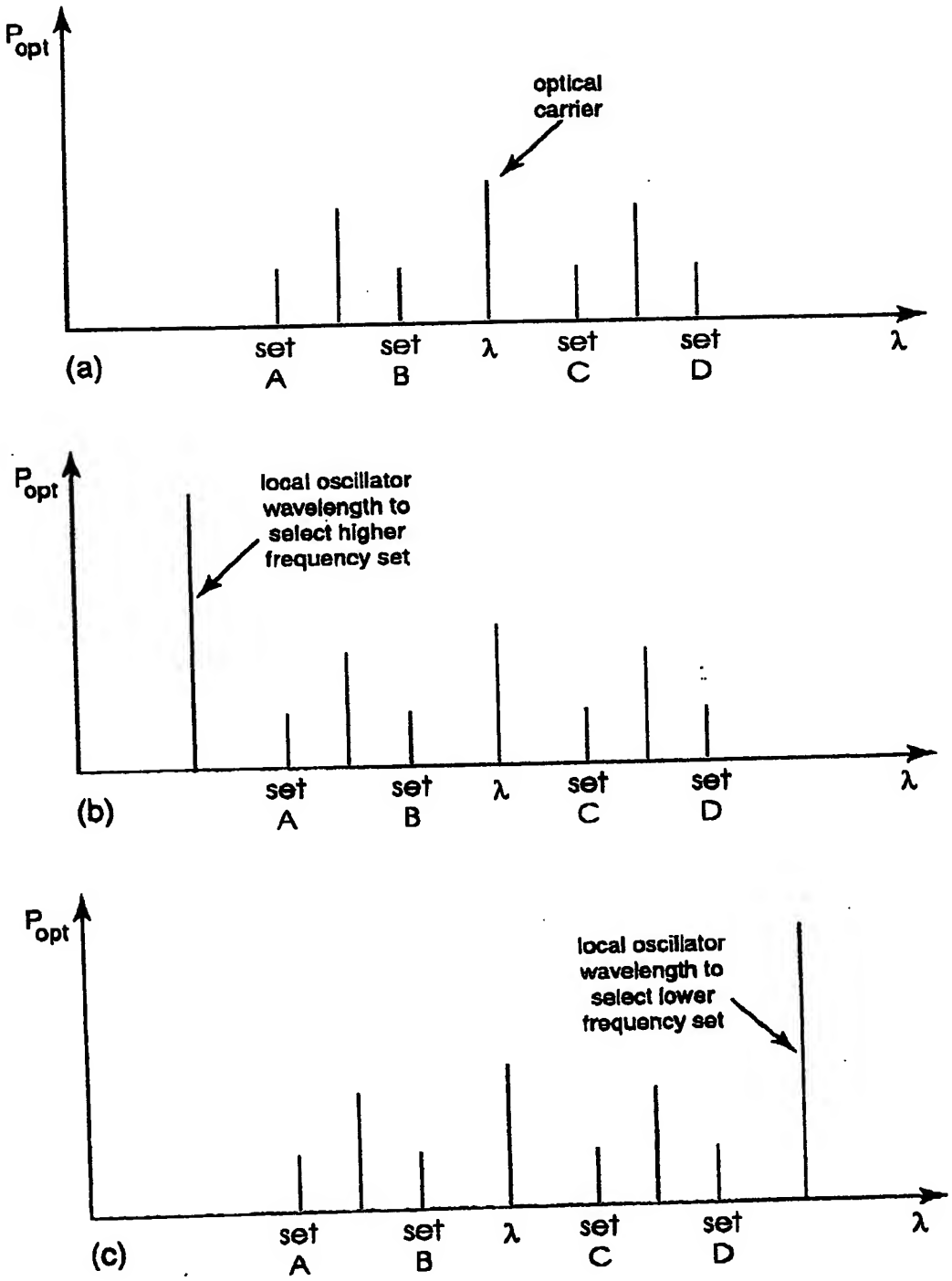

FIGURE 8